Check List 2007: 3(1)
ISSN: 1809-127X

LISTS OF SPECIES

Fishes from the Corumbá Reservoir, Paranaíba River drainage, upper Paraná River basin, State of Goiás, Brazil

Carla Simone Pavanelli[1,2]
Weferson Júnio da Graça[2]
Cláudio Henrique Zawadzki[1]
Heraldo Antonio Britski[3]
Ana Paula Vidotti[4]
Gleisy Semencio Avelino[5]
Samuel Veríssimo[1]

[1]Universidade Estadual de Maringá, Núcleo de Pesquisas em Limnologia, Ictiologia e Aqüicultura (Nupélia), Avenida Colombo 5790, CEP 87020-900, Maringá, PR, Brazil. E-mail: carlasp@nupelia.uem.br

[2]Universidade Estadual de Maringá, Programa de Pós-graduação em Ecologia de Ambientes Aquáticos Continentais (PEA), Avenida Colombo 5790, CEP 87020-900, Maringá, PR, Brazil.

[3]Museu de Zoologia da Universidade de São Paulo, Avenida Nazaré 481, CEP 04263-000, São Paulo, SP, Brazil.

[4]Universidade de São Paulo, Faculdade de Medicina Veterinária e Zootecnia, Departamento de Cirurgia, Pós-Graduação em Anatomia dos Animais Domésticos e Silvestres, Avenida Professor Dr. Orlando Marques de Paiva 87, 05508-000 São Paulo, São Paulo, Brazil.

[5]Universidade Estadual Paulista Júlio de Mesquita Filho, Instituto de Biociências de Botucatu, Departamento de Morfologia, Distrito de Rubião Jr. s/n, CEP 18618-000, Botucatu, SP, Brazil

Abstract
The Corumbá Reservoir is located in Corumbá River, a tributary to the right bank of Paranaíba River, upper Paraná River basin. Fish were collected monthly, from March 1996 to February 2000, in 17 sampling stations along Corumbá Reservoir and its influence area, using gill nets, casting nets, electrofishing and long lines. Considering the entire period, 119 fish species were colleted, which belong to seven Orders, 26 Families, and 78 Genera. Among them, five species are considered endemic to Corumbá River basin, and 17 are probably new to the science.

Introduction

The Corumbá River is the main right bank tributary of the Paranaíba River which together with Grande River originates the Paraná River (Paiva 1982). Its drainage basin has an area of 34,000 km^2 (predominantly scrubland in the Cerrado Biome). It is an upland river and the largest part of its course is narrow, with rocky bed and steep banks (Paiva 1982). The Corumbá River was dammed in September 1996, forming the Corumbá Hydroelectric Reservoir, which has 65 km^2 of surface area, 1,500 x 106 m^3 of total volume, 23 m of average depth, and 30 days of hydraulic retention time (Luz-Agostinho et al. 2006). Understanding the environmental changes caused by this impoundment was the main aim of a four years study carried out by the Núcleo de Pesquisas em Limnologia, Ictiologia e Aqüicultura (Nupélia), of the Universidade Estadual de Maringá, which caught several fish samples at that region. Few studies have been carried at Corumbá River basin (17°29'S/ 48°22'W - 17°59'S/48°31'W). Although fish species descriptions and fish auto ecology studies have generated some valuable data, the lack of knowledge about fish population structure from Corumbá River is evident. This study provides a complete check list of fish species from that region, with information about non-indigenous, endemic, and new species as well.

Materials and methods

Fish samples were carried out monthly from March 1996 to August 1996 (river phase), September 1996 to February 1997 (filling phase) and March 1997 to February 2000 (reservoir phase) in 17 sites distributed in the Corumbá reservoir and its tributaries (Figure 1). Fish were collected by gillnets with different mesh sizes (from 2.4 to 6.0 cm opposite knots). In littoral areas, 20 m long seining nets (0.5 cm mesh size) were operated during the day and night. In streams, electrofishing was conducted using a 220v generator equipped with 50 m cables and two energized dip nets. To identify fish species, specific literature for each group was used, in addition to contacts with experts in some groups. Classification of species is presented according to Eschmeyer (2006) for superior categories and non-Neotropical families Cyprinidae and Clariidae, and Reis et al. (2003) for Neotropical families,

LISTS OF SPECIES

except Loricariidae, according to Armbruster (2004). Voucher specimens of each species are deposited in the Coleção de Peixes do Nupélia (Núcleo de Pesquisas em Limnologia, Ictiologia e Aqüicultura), of the Universidade Estadual de Maringá.

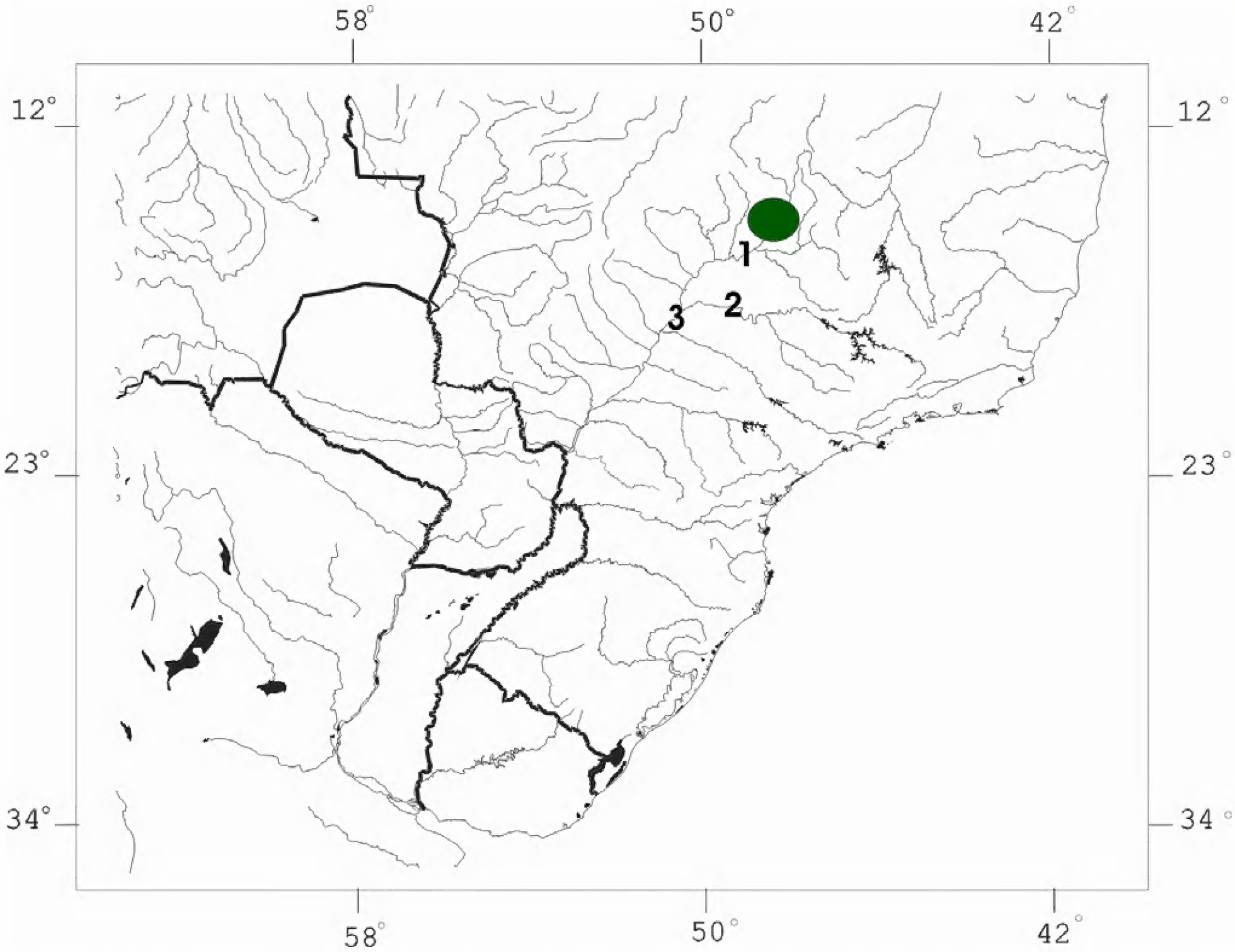

Figure 1. Partial map of Brazil and adjoining countries showing Corumbá Reservoir and influence area (green dot), Paranaíba River drainage, State of Goiás, Brazil. 1- Paranaíba River, 2- Grande River, and 3- Paraná River.

Results and discussion

Considering the entire period, 119 fish species belonging to seven Orders, 26 Families, and 78 Genera (Table 1) were collected, among which five species are considered endemic from Corumbá River basin, and 17 are probably new to the science, besides eleven introduced non indigenous species.

LISTS OF SPECIES

Table 1. Fish species from the Corumbá Reservoir, upper Paraná River basin. Endemic species to that basin are marked with **, introduced species are marked with *, and the regional popular name of each species is provided between quotation marks.

ACTINOPTERYGII	
Cypriniformes	
Cyprinidae	*Cyprinus carpio* Linnaeus, 1758 – "carpa-comum"*
Characiformes	
Parodontidae	*Apareiodon affinis* (Steindachner, 1879) – "canivete"
	Apareiodon ibitiensis Campos, 1944 – "canivete"
	Apareiodon piracicabae (Eigenmann, 1907) – "canivete"
	Parodon nasus Kner, 1859 – "canivete"
Curimatidae	*Cyphocharax modestus* (Fernández-Yépez, 1948) – "sagüiru"
	Steindachnerina corumbae Pavanelli & Britski, 1999 – "sagüiru"**
	Steindachnerina insculpta (Fernández-Yépez, 1948) – "sagüiru"
Prochilodontidae	*Prochilodus lineatus* (Valenciennes, 1836) – "curimbatá", "curimba"
Anostomidae	*Leporellus vittatus* (Valenciennes, 1850) – "solteira"
	Leporinus amblyrhynchus Garavello & Britski, 1987 – "piau"
	Leporinus friderici (Bloch, 1794) – "piau-três-pintas"
	Leporinus macrocephalus Garavello & Britski, 1988 – "piavuçu"*
	Leporinus microphthalmus Garavello, 1989 – "piau"
	Leporinus obtusidens (Valenciennes, 1836) – "piapara"
	Leporinus octofasciatus Steindachner, 1915 – "flamenguinho"
	Leporinus striatus Kner, 1858 – "piau-listrado"
	Leporinus tigrinus Borodin, 1829 – "piau"**
	Leporinus sp.– "piau"
	Schizodon nasutus Kner, 1858 – "ximborê"
Crenuchidae	*Characidium gomesi* Travassos, 1956 – "charutinho", "mocinha"
	Characidium aff. *zebra* Eigenmann, 1909 – "charutinho", "mocinha"
	Characidium sp. – "charutinho", "mocinha"
Characidae	
Genera *Incertae Sedis* in Characidae	*Astyanax altiparanae* Garutti & Britski, 2000 – "tambiú"
	Astyanax bockmanni Vari & Castro, 2007 – "lambari-do-rabo-amarelo"
	Astyanax aff. *fasciatus* (Cuvier, 1819) – "lambari-do-rabo-vermelho"
	Astyanax aff. *paranae* Eigenmann, 1914 – "lambari"
	Bryconamericus stramineus Eigenmann, 1908 – "lambari", "piabinha"
	Bryconamericus turiuba Langeani et al., 2005 – "lambari", "piabinha"
	Hasemania hanseni (Fowler, 1949) – "lambarizinho"
	Hyphessobrycon balbus Myers, 1927 – "lambarizinho"
	Moenkhausia aff. *intermedia* Eigenmann, 1908 – "pequira"
	Oligosarcus planaltinae Menezes & Géry, 1983 – "saicanga"
	Piabina argentea Reinhardt, 1867 – "lambari"
	Salminus brasiliensis (Cuvier, 1816) – "dourado"
	Salminus hilarii Valenciennes, 1850 – "tabarana"
	Triportheus nematurus (Kner, 1858) – "sardela"

LISTS OF SPECIES

Bryconinae	*Brycon amazonicus* (Spix & Agassiz, 1829) – "piraputanga"*
	Brycon nattereri Günther, 1864 – "piraputanga"
	Brycon orbignyanus (Valenciennes, 1850) – "piraputanga"
Serrasalminae	*Colossoma macropomum* (Cuvier, 1818) – "tambaqui" *
	Metynnis cf. *lippincottianus* (Cope, 1870) – "pacu"
	Myloplus tiete (Eigenmann & Norris, 1900) – "pacu-prata"
	Piaractus mesopotamicus (Holmberg, 1887) – "pacu"
	Serrasalmus maculatus Kner, 1858 – "piranha"
Characinae	*Galeocharax knerii* (Steindachner, 1879) – "saicanga"
Cheirodontinae	*Odontostilbe* sp. – "lambarizinho"
Glandulocaudinae	*Planaltina myersi* Böhlke, 1954 – "lambari"**
Acestrorhynchidae	*Acestrorhynchus lacustris* (Lütken, 1875) – "peixe-cachorro"
Erythrinidae	*Erythrinus erythrinus* (Bloch & Schneider, 1801) – "jeju"*
	Hoplias aff. *malabaricus* (Bloch, 1794) – "traíra"
Lebiasinidae	*Pyrrhulina australis* Eigenmann & Kennedy, 1903
Siluriformes	
Cetopsidae	*Cetopsis gobioides* Kner, 1858 – "candiru"
Trichomycteridae	*Ituglanis* sp. – "candiru"
	Paravandellia oxyptera Miranda-Ribeiro, 1912 – "candiru-vampiro"
Callichthyidae	*Aspidoras fuscoguttatus* Nijssen & Isbrücker, 1976 – "coridoras"
	Callichthys callichthys (Linnaeus, 1758) – "camboja, tamboatá"
	Corydoras difluviatilis Britto & Castro, 2002 – "limpa-vidro"
	Hoplosternum littorale (Hancock, 1828) – "tamboatá"
Loricariidae	
Neoplecostominae	*Neoplecostomus* sp. – "cascudinho"**
Hypoptopomatinae	New genus – "cascudinho"**
Loricariinae	*Loricaria prolixa* Isbrücker & Nijssen, 1978 – "rapa-canoa"
	Rineloricaria cf. *latirostris* (Boulenger, 1900) – "rapa-canoa"
Hypostominae	*Hypostomus ancistroides* (Ihering, 1911) – "cascudo"
	Hypostomus iheringi (Regan,1908) – "cascudo"
	Hypostomus margaritifer (Regan, 1908) – "cascudo"
	Hypostomus nigromaculatus (Schubart, 1964) – "cascudo"
	Hypostomus regani (Ihering, 1905) – "cascudo"
	Hypostomus strigaticeps (Regan, 1908) –"cascudo"
	Hypostomus sp. 1 – "cascudo"
	Hypostomus sp. 2 – "cascudo"
	Hypostomus sp. 3 – "cascudo"
	Hypostomus sp. 4 – "cascudo"
	Hypostomus sp. 5 – "cascudo"
	Hypostomus sp. 6 – "cascudo"
	Hypostomus sp. 7 – "cascudo"
	Megalancistrus sp. – "cascudo-abacaxi"
Pseudopimelodidae	*Pseudopimelodus mangurus* (Valenciennes, 1835) – "bagre-sapo"
	Pseudopimelodus pulcher (Boulenger, 1887) – "bagre-sapo"

LISTS OF SPECIES

Heptapteridae	*Cetopsorhamdia iheringi* Schubart & Gomes, 1959 – "bagre"
	Imparfinis borodini Mees & Cala, 1989 – "bagre pedra"
	Imparfinis schubarti (Gomes, 1956) – "bagrinho"
	Phenacorhamdia tenebrosa (Schubart, 1964) – "bagrinho"
	Pimelodella avanhandavae Eigenmann, 1917– "mandi-chorão"
	Pimelodella gracilis (Valenciennes, 1835) – "mandi-chorão"
	Rhamdia quelen (Quoy & Gaimard, 1824) – "jundiá"
Pimelodidae	*Iheringichthys labrosus* (Lütken, 1874) – "mandi-beiçudo"
	Megalonema platanum (Günther, 1880) – "bagre"
	Pimelodus heraldoi Azpelicueta, 2001 – "mandi"
	Pimelodus maculatus La Cepède, 1803 – "mandi"
	Pimelodus paranaensis Britski & Langeani, 1988 – "mandi"
	Pimelodus sp. – "mandi"
	Pinirampus pirinampu (Spix & Agassiz, 1829) – "barbado"
	Pseudoplatystoma corruscans (Spix & Agassiz, 1829) – "pintado"
	Sorubim lima (Bloch & Schneider, 1801) – "bico-de-pato"
	Steindachneridion scriptum (Miranda-Ribeiro, 1918) – "sorubim"
	Zungaro zungaro (Humboldt, 1821) – "jaú"
Doradidae	*Rhinodoras dorbignyi* (Kner, 1855) – "armado"
Auchenipteridae	*Ageneiosus militaris* Valenciennes, 1836 – "manduvê"
	Glanidium cesarpintoi Ihering, 1928 – "bocudo"
	Tatia neivai (Ihering, 1930) – "bocudo"
Clariidae	*Clarias gariepinus* (Burchell, 1822) – "bagre-africano" *
Gymnotiformes	
Gymnotidae	*Gymnotus inaequilabiatus* (Valenciennes, 1839) – "morenita, tuvira" *
Sternopygidae	*Eigenmannia trilineata* López & Castello, 1966 – "espadinha"
	Eigenmannia sp. – "espadinha"
	Sternopygus macrurus (Bloch & Schneider, 1801) – "ituí"
Apteronotidae	*Apteronotus* sp. – "ituí"
	Porotergus ellisi Arámburu, 1957 – "ituí"
Cyprinodontiformes	
Poeciliidae	*Poecilia reticulata* Peters, 1859 – "guaru"*
	Xiphophorus hellerii Heckel, 1848 – "espadinha"*
Synbranchiformes	
Synbranchidae	*Synbranchus marmoratus* Bloch, 1795 – "muçum"
Perciformes	
Cichlidae	*Cichla kelberi* Kullander & Ferreira, 2006 – "tucunaré"*
	Cichlasoma paranaense Kullander, 1983 – "cará"
	Crenicichla haroldoi Luengo & Britski, 1974 – "joaninha"
	Crenicichla niederleinii (Holmberg, 1891) – "joaninha"
	Laetacara sp. – "cará"*
	Satanoperca pappaterra (Heckel, 1840) – "cará"
	Oreochromis niloticus (Linnaeus, 1758) – "tilápia-do-Nilo"*
	Tilapia rendalli (Boulenger, 1897) – "tilápia" *

LISTS OF SPECIES

Luz-Agostinho et al. (2006) studied food spectrum and trophic structure of 64 fish species from the Corumbá Reservoir, however some of them were misidentified. For standardizing purposes, the updated names of those species are presented between parentheses: *Ageneiosus valenciennesi* (*A. militaris*), *Astyanax bimaculatus* (*A. altiparanae*), *Astyanax eigenmanniorum* (*A. bockmanni*), *Cichla monoculus* (*C. kelberi*), *Gymnotus carapo* (*G. inaequilabiatus*), *Lebistes reticulatus* (*Poecilia reticulata*), *Megalonema platanus* (*M. platanum*), *Nannorhamdia schubarti* (*Imparfinis schubarti*), *Parodon tortuosus* (*P. nasus*), *Pimelodus fur* (*P. heraldoi*), *Pimelodus paranensis* (*P. paranaensis*), *Salminus maxillosus* (*S. brasiliensis*) and *Serrasalmus spilopleura* (*S. maculatus*). *Neoplecostomus paranensis* is called herein as *Neoplecostomus* sp. according to a study that has been carried out by C.H. Zawadzki, C.S. Pavanelli and F. Langeani (pers. comm.).

The Paranaíba River basin presents some endemic species of different groups. It is attributed to a series of rapids which represent barriers to free dispersal of fishes between upper and lower parts of the basin (Pavanelli and Britski 1999). This hypothesis is corroborated by some authors (*e.g.* Ribeiro et al. 2004) who described *Creagrutus varii* from the Paranaíba River basin. Zarske and Géry (1999), and Menezes et al. (2003) described new species apparently restrict to that region, in addition to some other species mentioned by Reis et al. (2003), which only occur in the Corumbá River basin, such as *Hasemania crenuchoides* (not captured in this study), *Planaltina myersi*, and *Steindachnerina corumbae*. *Leporinus tigrinus*, described from the type-locality "Goyaz" by Borodin in 1929 had never been collected again after that. Since then it has been considered restricted to the Araguaia/Tocantins basin (Britski 1997; Garavello and Britski 2003). However, considering the provenience of all material of Thayer Expedition labeled as "Goyaz" as from the Araguaia/Tocantins basin is not recommended by Lima (2004), who studied some *Brycon* species. Only one specimen attributed to *L. tigrinus* was caught in this study, but considering its very peculiar color pattern, it can be certainly attributed to this species. It corroborates the Lima's comment and contributes to indicate the type-locality of this species is Paraná River rather than Araguaia River.

Some of the non-indigenous species captured in the whole survey were originally from other Brazilian basins and others were even from other countries. *Brycon amazonicus*, *Clarias gariepinus, Colossoma macropomum*, *Cyprinus carpio*, *Leporinus macrocephalus, Oreochromis niloticus* and *Tilapia rendalli* which were represented only by large individuals, and occurred sporadically in the samples, may have been intentional or accidentally carried or having escaped from some small ponds or tanks situated near the sampling region. *Erythrinus erythrinus* and *Gymnotus inaequilabiatus* were also sporadic, and as they are commonly used as live bait by Brazilian anglers, it could explain their presence in the Corumbá River basin. *Laetacara* sp., *Poecilia reticulata,* and *Xiphophorus hellerii* may also have been intentional or accidentally carried by aquarists or for controlling insects' larvae. *Cichla kelberi*, native from Amazon basin, was introduced in several Brazilian rivers for recreational fishing. All the indigenous species listed in Table I with no specific name are probably new species which have been studied for specialists, including a new genus of Hypoptopomatinae subfamily.

Acknowledgements

Special tribute is due to Douglas P. Lopes (in memoriam) who started working on this project and prematurely died on September 2000 in a traffic accident. Thanks are also given to Furnas Centrais Elétricas S.A. and Nupélia/UEM (Núcleo de Pesquisas em Limnologia, Ictiologia e Aqüicultura) for offering logistical support for collecting and analyzing materials. To Flávio C. T. Lima and Naércio A. Menezes (MZUSP), Flávio A. Bockmann and Aléssio Datovo (USP/LIRP) for helping to identify some fish species. This study was partially supported by grants from CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico) to CSP, HAB, GSA, and Capes (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior), to WJG and APV.

LISTS OF SPECIES

Literature cited

Armbruster, J. W. 2004. Phylogenetic relationships of the suckermouth armoured catfishes (Loricariidae) with emphasis on the Hypostominae and the Ancistrinae. Zoological Journal of the Linnean Society 141: 1–80.

Britski, H. A. 1997. Descrição de duas espécies novas de *Leporinus* dos rios Araguaia e Tocantins, e comentários sobre as demais espécies do gênero assinaladas na bacia (Ostariophysi, Characiformes, Anostomidae). Comunicações do Museu de Ciências e Tecnologia da PUCRS (Zool.) 10: 27–43.

Eschmeyer, W. N. 2006. Catalog of Fishes. Electronic Publication accessible at http://www.calacademy.org/research/ichthyology/catalog/classif.html. San Francisco: California Academy of Sciences, USA. Captured on 28 November 2006.

Garavello, J. C. and H. A. Britski. 2003. Family Anostomidae (Headsanders). Pp. 71–84. In R. E. Reis, S. O. Kullander, and C. Ferraris Jr. (eds.), Check list of the freshwater fishes of South and Central America. Porto Alegre. EDIPUCRS. 742 p.

Lima, F. C. T. 2004. *Brycon gouldingi*, a new species from the Tocantins drainage, Brazil (Ostariophysi: Characiformes: Characidae), with a key to the species in the basin. Ichthyological Exploration of Freshwaters 15(3): 279–287.

Luz-Agostinho, K. D. G., L. M. Bini, R. Fugi, A. A. Agostinho, and H. F. Júlio, Jr. 2006. Food spectrum and trophic structure of the ichthyofauna of Corumbá reservoir, Paraná river Basin, Brazil. Neotropical Ichthyology 4(1): 61–68.

Menezes, N. A., S. H. Weitzman, and J. R. Burns. 2003. A systematic review of *Planaltina* (Teleostei: Characiformes: Characidae: Glandulocaudinae: Diapomini) with a description of two new species from the upper rio Paraná, Brazil. Proceedings of the Biological Society of Washington 116(3): 557–600.

Paiva, M. P. 1982. Grandes represas do Brasil. Brasília: Editerra. 292 p.

Pavanelli, C. S. and H. A. Britski. 1999. Description of a new species of *Steindachnerina* (Teleostei: Characiformes: Curimatidae) from the upper Rio Paraná basin, Brazil. Ichthyological Exploration of Freshwaters 10(3): 211–216.

Reis, R. E., S. O. Kullander, and C. Ferraris Jr. 2003. Check list of the freshwater fishes of South and Central America. Porto Alegre. EDIPUCRS. 742 p.

Ribeiro, A. C., R. C. Benine, and C. A. Figueiredo. 2004. A new species of *Creagrutus* Günther (Teleostei: Ostariophysi: Characiformes), from the upper Río Paraná basin, central Brazil. Journal of Fish Biology 2004(64): 597–611.

Zarske, A. and J. Géry. 1999. *Hasemania crenuchoides*, spec. nov. - ein neuer Salmler aus dem Bundesstaat Goias, Brasilien. Spixiana 22(1): 91–96.

Received February 2007
Accepted March 2007
Published online March 2007